

Application No. 10/089,578
Filed: August 12, 2002
TC Art Unit: 1754
Confirmation No.: 2516

AMENDMENT TO THE CLAIMS

1. (Currently Amended) Process for the selective catalytic reduction of sulphur dioxide content of a gas mixture comprising sulfur dioxide, sulfur vapor, and at least containing 10 vol.% of water, in which process the gas mixture is passed over a sulphur resistant hydrogenation catalyst in sulphidic form, at a space velocity of at least 2000 h^{-1} , in the presence of a reducing component, in a molar ratio of reducing component to sulphur dioxide of more than 10 up to 100, at a temperature of 125°C to 300°C , thereby producing a resulting gas mixture comprising less than 1.2 vol. % H_2S , followed by passing the gas mixture, after the said reduction, through a dry oxidation bed for the oxidation of sulphur compounds to elemental sulphur.

2. (Original) Process according to claim 1, wherein the catalyst is supported on a carrier material having substantially no activity towards the Claus reaction and having at least one sulphidic hydrogenation component applied to the surface of said carrier material.

3. (Previously Presented) Process according to claim 2, wherein the said hydrogenation component is selected from the group consisting of Cr, Mo, W, Mn, Te, Re, Fe, Co, Ni, Ru, Rh, Pd, Os, Ir and Pt.

4. (Original) Process according to claim 3, wherein the hydrogenation component is based on molybdenum, and/or tungsten and/or cobalt.

Application No. 10/089,578

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5. (Original) Process according to claim 4, wherein the hydrogenation component is a catalyst based molybdenum or tungsten on a silica support, preferably containing 0.1 to 50 wt.% of molybdenum or tungsten.

6. (Previously Presented) Process according to claims 2, wherein the carrier material is selected from the group consisting of silica, α -alumina, silica alumina, zirconia, carbon (fibres), carbides, phosphates and aluminium phosphate.

7. (Previously Presented) Process according to claims 1, wherein said space velocity is less than 12000 h^{-1} .

8. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 1,

selectively oxidising the hydrogen sulphide present in the resulting gas mixture to elemental sulphur.

9. (Previously Presented) Process according to claim 8, wherein the said step of selectively oxidising is carried out in a dry oxidation bed.

-3-

WEINCARTEN, SCHURGIN,
GACNERIN & LEBOVICI LLP
TEL. (617) 542-2200
FAX. (617) 451-0313

Application No. 10/089,578
Filed: August 12, 2002
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10. (Previously Presented) Process according to claim 3, wherein the carrier material is selected from the group consisting of silica, α -alumina, silica alumina, zirconia, carbon (fibres), carbides, phosphates and aluminium phosphate.
11. (Previously Presented) Process according to claim 4, wherein the carrier material is selected from the group consisting of silica, α -alumina, silica alumina, zirconia, carbon (fibres), carbides, phosphates and aluminium phosphate.
12. (Previously Presented) Process according to claim 5, wherein the carrier material is selected from the group consisting of silica, α -alumina, silica alumina, zirconia, carbon (fibres), carbides, phosphates and aluminium phosphate.
13. (Previously Presented) Process according to claim 2, wherein said space velocity is less than 12000 h^{-1} .
14. (Previously Presented) Process according to claim 3, wherein said space velocity is less than 12000 h^{-1} .
15. (Previously Presented) Process according to claim 4, wherein said space velocity is less than 12000 h^{-1} .
16. (Previously Presented) Process according to claim 5, wherein said space velocity is less than 12000 h^{-1} .
17. (Previously Presented) Process according to claim 6, wherein said space velocity is less than 12000 h^{-1} .

-4-

WEINGARTEN, SCHROEDER,
CAGNON & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 491-0313

Application No. 10/089,578

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TC Art Unit: 1754

Confirmation No.: 2516

18. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 2.

19. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 3.

20. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

Application No. 10/089,578
Filed: August 12, 2002
TC Art Unit: 1754
Confirmation No.: 2516

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 4.

21. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 5.

22. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 6.

23. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

Application No. 10/089,578
Filed: August 12, 2002
TC Art Unit: 1754
Confirmation No.: 2516

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 7.

24. (Previously Presented) Process according to claim 12, wherein said space velocity is less than 12000 h^{-1} .

25. (Previously Presented) Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

converting part of the hydrogen sulphide into sulphur dioxide,

subjecting the mixture to the Claus reaction in at least one catalytic reactor,

subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of claim 24.

26. (Cancelled)

27. (Previously Presented) Process according to claim 1, wherein said reducing component is at least partly consisting of hydrogen.

28. (Previously Presented) Process according to claim 1, wherein said space velocity is less than 10000 h^{-1} .

29. (Previously Presented) Process according to claim 2, wherein said space velocity is less than 10000 h^{-1} .

-7-

WEINGARTEN, SCHURGIN,
GACHNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Application No. 10/089,578

Filed: August 12, 2002

TC Art Unit: 1754

Confirmation No.: 2516

30. (Previously Presented) Process according to claim 3, wherein said space velocity is less than 10000 h^{-1} .

31. (Previously Presented) Process according to claim 4, wherein said space velocity is less than 10000 h^{-1} .

32. (Previously Presented) Process according to claim 5, wherein said space velocity is less than 10000 h^{-1} .

33. (Previously Presented) Process according to claim 6, wherein said space velocity is less than 10000 h^{-1} .

34. (Previously Presented) Process according to claim 12, wherein said space velocity is less than 10000 h^{-1} .